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NEW YORK LETTUCE

THE GREATEST SHIPPING VARIETY IN THE WORLD

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NEW YORK LETTUCE, MORSE'S SPECIAL—No. 41

HIS is a strain we have bred and developed at our Seed Breeding Station at Salinas, California, and it is giving excellent results wherever tried.

It has been especially bred for a protected head. In our reference to it, however, we describe it as the strain with "wrapper" leaves, meaning leaves on the outside which protect the hard, cabbage-like head from sun burn or fog burn.

We have now given it a thorough trial on our own farms and several of the large market growers have planted it during the season of 1928 and have had great success with it.

Those who tried it on fresh land in Imperial Valley and those who had it for summer cutting in Salinas, found that all the claims we made for it were well founded. The wrapper leaves are a decided advantage in preventing the scalding of the top of the head by sun or summer fogs and even when there is no danger from the elements, the head forms early and comes uniformly true to type.

Many of the fields planted with it during the past year produced mature heads for cutting in 65 days and it seemed to resist breaking or bolting to a remarkable degree.

The color of the outside leaves is a remarkably fine deep rich green and the interior is snow-white, solid and crisp.

While we still recommend our general commercial stock, "Morse's Special" for spring crops north of Imperial Valley, we advise planters to use our No. 41 for all other plantings.

C. C. MORSE & CO.
SEED GROWERS

GENERAL OFFICES AND WAREHOUSE, 749 FRONT STREET
SAN FRANCISCO :- :- CALIFORNIA, U. S. A.

NEW YORK LETTUCE

THE great fields of lettuce now grown on the Pacific Coast are planted exclusively with the variety known among Seedsmen as New York, as this was the name given to it by a prominent New York Seedsman forty years ago.

The Merchants and Shippers, however, refer to this variety as either "Iceberg" or "Iceberg Type," but it must not be confused with an existing variety known as Iceberg, which is distinct and which is grown in many sections of the country as a local market lettuce. This latter variety is light green, with distinct brown edges, and while it forms a fine crisp head the leaves are thin and tender and are easily bruised which renders the variety useless for long distance shipping.

New York Lettuce is now produced under several distinct strains, three of which we have developed at our Seed Breeding Station. A resistant strain has been developed in Imperial Valley for such fields as have become infected with brown blight and is known as Imperial No. 2. This strain was bred up by Dr. Ivan C. Jagger, who is employed as an expert plant pathologist by the U. S. Department of Agriculture.

All of the strains, including the latter, reach the market as crisp heading, tight folded lettuce which all Seedsmen call New York. It was quite commonly called Los Angeles at one time when its production was largely confined to that vicinity, but is seldom referred to by that name now. It is called Wonderful in Great Britain and other foreign countries but is seldom known by this name in America.

Some 80,000 acres of New York Lettuce was grown on the Pacific Coast in 1928, and about 50,000 car loads were shipped to all parts of America, in refrigerator cars averaging 320 crates to the car and each crate containing 4 or 5 dozen heads, all carefully trimmed and packed in attractive style.

These crates represent an attractive and efficient method of marketing lettuce. The crates are easily handled and are excellent containers for the lettuce when placed on sale.

The increase in the consumption of lettuce has been enormous in the past few years in America and it has become a staple article of food. In fact, practically all households have a supply of lettuce for salad on hand every day in the year.

Growing New York Lettuce for Market and Shipping

The method for field culture usually employed on the Pacific Coast in growing lettuce for shipping is the "ridge" system. A bed is formed by running a furrow every 42 or 48 inches with a tool called a lister. This allows for the irrigation furrows and the lettuce bed. In the bed thus formed the rows of lettuce are sown 14 to 16 inches apart and the irrigation water is run down the ditches as often as necessary, which means that the soil should always be kept moist but not too wet. When in about the fourth leaf the plants are thinned to one foot apart. From $1\frac{1}{2}$ to 2 pounds of seed per acre is used.

Seed one or two years old is preferable to seed freshly harvested as it germinates more uniformly and commands a premium in price. Some planters adhere to the belief that aged seed produces tighter heads and there may be some merit in this idea for crops maturing at certain seasons.

The time for sowing the seed for market crop varies, but crops are grown on the Pacific Coast practically the year round.

A market lettuce crop produces shipping heads in 65 to 90 days, depending on the weather conditions and also on the strain used.

In Arizona, the first plantings are made in September for November and December shipping. The largest acreage, however, is sown in November for shipping in March and April. The principal lettuce district is in the vicinity of Phoenix, Arizona, and there are days when shipments will average 200 cars per day.

In Imperial Valley, California, the plantings are made principally in the month of October and cuttings are made in January and February, with some acreage available in March, and the peak shipments from the Valley sometimes run as high as 230 cars per day.

In the Central Coast district, or more specifically the Salinas and Pajaro Valleys, the principal plantings are made in January and February, and the heaviest cutting is in April and May. Plantings in smaller acreages are made at various times in the Spring and Summer. A large planting is made in July, however, for late September and October shipping. The peak shipments are in May and again in October, and run as high as 250 cars per day.

Colorado produces some Summer and early Fall crops. Many of the large shippers operate both South and North and aim to have lettuce on all the principal markets the year round. Naturally the Summer crops from California are smaller since there are local crops of the Cabbage, Butter Head types grown in the vicinity of all the large cities in the East.

New York lettuce is essentially a cool weather variety and sections of the coast are chosen for maturity during cool weather, so naturally Imperial Valley and Arizona produce winter crops and the cool coast climates in Salinas and the Pajaro Valley (Watsonville) produce mature crops in Spring, Summer and Fall. Such crops as are grown in the Sacramento or San Joaquin Valleys are timed to come off in the Spring.

Lettuce requires very good land, in fact the best land that can be procured. In the southern part of the State and in Arizona, sandy loam soil is used. In the vicinity of Salinas and Watsonville, heavy soil is preferred although not the heaviest sort of adobe.

Land for lettuce must be definitely controlled for irrigation and must be levelled and furrowed accordingly. Lettuce grown for market is seldom grown in large tracts, usually not more than 150 acres and frequently only 20 or 30 acres in a plot. These choice bits of land are usually leased by the lettuce planters and as high as \$75.00 per acre, annual cash rent is paid for choice land.

Not only does lettuce growing demand the very best land but it must be well supplied with water and the contour must be levelled and prepared for irrigation. No lettuce crops, so far as we know, are grown without frequent irrigation.

The crop must be frequently cultivated and as soon as dry enough to admit it, cultivation should follow irrigation or the soil will bake and become hard.

Sowing the seed is usually done when the top soil is barely dry and is not dependent on a rain to sprout the seed. In fact a rain is likely to pack the soil on top and prevent the young plants from coming up so that the land must be harrowed and the seed replanted.

The young plants should show in the row about ten days after sowing.

It is necessary to work the soil as fine as possible on the surface before sowing the seed since a rough surface with clods prevents a perfect stand.

If the weather permits a quick rapid growth the lettuce heads are apt to be of finer quality than if the plants are retarded in their growth in any way.

New York lettuce is subject to tip-burn and slime, both caused by weather conditions. Should the weather turn abnormally warm just as the head has reached the cutting stage it is quite likely to begin to rot or turn "slimy". Not only warm weather but a warm, windy day is likely to cause tip-burn. So far, we have been unable to breed a strain that is resistant to either of these troubles. These conditions are not a disease like brown rust, which is prevalent in Imperial Valley and which affects the crop in other sections to some extent. For this reason we are at work on new resistant strains for Central California districts.

The large planters of lettuce have found it best to keep lettuce growing on land only about three years, and as two crops are grown per year, this makes about six crops. Land by this time has usually been rather exhausted for further lettuce crops and up to the present time very little fertilizing has been done.

However, as choice pieces of land are becoming rarer the time limit has been extended to continuous cropping for four and five years and some commercial fertilizers have been used, different kinds for various locations. Important experiments are being made with nitrates and other commercial fertilizers but no definite conclusions have been determined thus far. Barnyard manure is of course ideal but it is likely to contain viable weed seeds and present day costs must be considered in all hand labor such as hoeing weeds, and the labor involved in hauling and spreading manure.

Land that is somewhat infested with wild Morning Glory can be used for lettuce culture since lettuce makes a crop in from 65 to 90 days and when grown in the Spring or in the Fall, it is easy to keep ahead of Morning Glory with one extra hoeing. This has been a great boon to the farmers whose land would be quite valueless for some crops where it is infested with Morning Glory and other weeds.

The most up-to-date intensive cultivation is required for good lettuce, but in spite of all human effort the crop is dependent on the weather and sometimes the most promising crops "blow up," as the lettuce men say, meaning that the crop comes just to the heading stage and refuses to head, or after forming fine heads they begin to rot or turn "slimy." In either case there is nothing to do but chop up the fields with disc harrows and begin again.

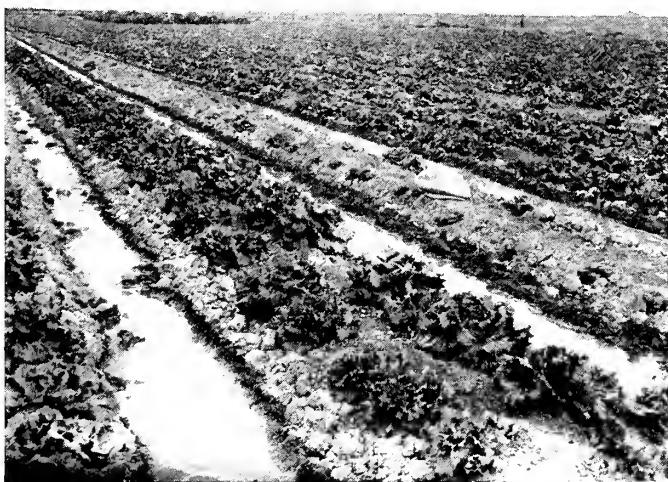
Growing lettuce is one of the most critical kinds of farming and needless to say good seed or rather the best seed is demanded by the lettuce grower and shipper.



GROWING NEW YORK LETTUCE FOR MARKET SHIPPING

The plants are about 2 inches high and are being thinned so as to leave but one plant every 14 or 16 inches.

The growers usually plant generously to insure a good stand of plants. The seed must be of good germination and must also be sown at the proper time by men of experience. After a good irrigation the top soil must be allowed to dry before sowing with a planter. Best results are obtained when the plants come up and show in the row before a rain.



A field of New York lettuce growing in Imperial Valley on land that is infected with brown blight. The bed showing the burlap sack has been planted with a regular strain but the rest of the field is planted to Imperial No. 2, a resistant strain developed by Dr. Jagger of the U. S. Department of Agriculture. We grow our planting stock of this variety in Imperial on infected land to insure that the strain is carrying on its resistant characteristics. We are also continuing the breeding work for fine uniform tight heads.



A typical field of our New York Special just maturing and nearly ready to cut. Under this system of planting, there are two rows to a bed and the plants thinned to about 14 inches apart. As all lettuce crops require frequent irrigation, ample room is left for the water between rows.

The rows must not be too long or the beds near the lateral ditch will get too much water. The proper length may be 200 to 600 feet, depending on the lay of the land.



NEW YORK LETTUCE GROWING FOR MARKET

Cutting heads for market. The crates are filled with good heads and hauled to the highway where they are loaded on to motor trucks and hurried to the packing houses. The heads are then trimmed, covered with oiled paper and packed with crushed ice into shipping crates and loaded into refrigerator cars. There are a great many of these packing houses in California and Arizona with trackage and ice loading facilities and they are operated with great efficiency.



NEW YORK LETTUCE GROWING FOR SEED

A field of our New York Special growing for seed on our Seed Ranch in the Fairview district near Hollister. Every plant that has not formed a tight head or that is not the true type has been "rogued" out. Every head must be twisted off or cut open, leaving the seed stem or heart intact. If not so cut, the heads will rot and die without running to seed.



"ONE OF THE LETTUCE WORKSHOPS"

In our seed breeding work we refer to the plots devoted to planting for increase for seed product as the "workshop."

Above is a photo of one of our workshops of New York Lettuce. Each row represents the product of an individual plant which was selected and "bagged" the year previous and some of them represent several generations of individual selection. Each plant here shown has been selected and staked and "bagged" with a cheese cloth sack which is securely tied at the top and bottom. A tag on which is written the records and notes is securely tied to the top of the stake and it follows the seed when it is gathered. Each plant product is kept separate and while only a little seed is saved from one plant it is recorded and a sample tested in the Trial Grounds to determine whether or not it is worth planting again for increase.



AT WORK AT THE SEED BREEDING STATION

This illustrates one of our staff at our Seed Breeding Station cross-pollenizing lettuce. The ultimate progeny may develop some variety superior to any of those we now know. It requires fully four years to determine whether or not this is so.



MORSE'S SPECIAL NEW YORK LETTUCE

Our well bred, carefully developed standard strain used very extensively by the large planters and shippers. This strain has been giving satisfactory results and we are continuing our selecting and breeding work to keep it pure and true to type.



IMPERIAL No. 2

A strain of New York lettuce developed for resistance to the brown rust blight so prevalent in the Imperial Valley. This strain was bred and developed by Dr. Ivan C. Jagger of the U. S. D. A.



A typical crate of our New York Special opened up after arrival.

Oiled paper is used for lining the crate and crushed ice is used almost extravagantly in packing the crates and in covering them after the car is loaded.



The great merit of New York lettuce is that if the outside leaves wilt they can be stripped off and even if the head seems quite badly wilted the heart is white and usually crisp. This represents a trimmed head of Morse's New York Special.



A large field of New York Lettuce growing for seed on one of our Seed Ranches near Hollister. The crop is nearly ripe and ready for harvest. New York lettuce is a shy seeder and does not ripen evenly like most other varieties.

GROWING THE SEED CROP

IN growing lettuce seed, the important feature is the use of pedigreed seed, grown from pure line cultures for growing the seed crop.

We use nothing for stock seed but such strains as have been bred and recorded and the numeral attached to each stock is the key to its history. We plant nothing either except stock from which samples have been planted and which has proven that it has true reproduction characteristics.

The seed is sown at various times from December to March, in rows from 22 to 24 inches apart. For a seed crop the plants are thinned to about eight inches apart when in the fourth leaf. The crop is "rogued" two or three times, and all plants which do not form good, tightly folded heads are cut out. When the heads are mature they are either cut open or twisted off to allow the seed stalk to run up. The cutting of the heads must be done carefully so as not to break the seed stalk at the heart. Although these heads are in fine condition for eating they cannot be used and are left in the field to wither and dry up. Unless the head is thus cut open or broken off it will rot and die.

Some seasons the growing conditions require a further operation called "stripping" in which the bottom leaves must be broken off and brushed away to allow freer circulation of air or stem rot might develop.

It usually requires eight or nine months to grow a seed crop. So far no country or climate has been found that surpasses cen-

tral California for the culture of lettuce seed. The development of lettuce can be perfected here and for over 50 years C. C. Morse & Co. have been growing and selling lettuce seed to all parts of the world and are recognized as lettuce specialists.

We grow and list the following strains of New York Lettuce:

MORSE'S SPECIAL—COMMERCIAL STOCK. Our hard heading strain which forms heads like cabbages. This strain is preferred by many planters to all others. See photograph page 7.

MORSE'S SPECIAL—No. 5084. An early strain which has been giving fine results in the East where New York has not hitherto been successful.

MORSE'S SPECIAL—No. 41. A strain we have developed with extra wrapper leaves over the head, and which protect the head from sun-burn and fog-burn. It is somewhat earlier than "Morse's Select" and is very popular with the big shippers. Our field name for it is Morse's No. 41. See photograph on page 1.

IMPERIAL No. 2. The strain which is resistant to the brown blight prevalent in the Imperial Valley, and which was developed by Dr. Ivan C. Jagger of the U. S. D. A. See photograph, page 7.

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